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DRAFT Southern California Association of Governments
Multi-Sector Catalog
Greenhouse Gas Reduction Policy Options

This catalog of Energy Supply (ES) regional-level greenhouse gas (GHG) reducing actions and policy options prepared by the Center for Climate Strategies (CCS) is based on actions undertaken or considered in state- and region-wide climate change action plans by multi-stakeholder groups in a wide cross-section of U.S. states and by state, local and private participants.

Sector 2 of 4: Energy Supply

Table	Sector Covered
2	Energy Supply (ES)

Key to Rankings* of Options in the Tables that Follow:

Potential GHG Emission Reductions [1]	Potential Cost or Cost Savings [1, 2]
High (H): At least 1.0 million metric tons (MMt) carbon dioxide equivalent (CO_2e) per year by 2025	**High (H)**: $50 per metric ton CO_2e (tCO_2e) or above
Medium (M): From 0.1 to 1.0 $MMtCO_2e$ per year by 2025	**Medium (M):** $5 to 50/$tCO_2e$
Low (L): Less than 0.1 $MMtCO_2e$ per year by 2025, or 1 MMtCO2e by 2050	**Low (L):** Less than $5/$tCO_2e$
Uncertain (U): Not able to estimate at this time	**Uncertain (U):** Not able to estimate at this time
[1] Several measures may overlap in terms of emissions reductions and/or cost impacts. Estimates assume measures would be implemented independently from other measures.	
[2] Costs are denoted by a positive number. Cost *savings* (i.e., "negative costs") are denoted by a negative number.	

Definition of "Priorities for Analysis":

- **High:** High priority options will be analyzed first.
- **Medium:** Medium priority options will be analyzed next, time and resources permitting.
- **Low**: Low priority options will be analyzed last, time and resources permitting.

The GHG reductions or cost/cost savings of some policy options are not quantified (NQ) due to lack of data or for other reasons.

*To be completed as part of the on-going process

Important Note: The actions are numbered in this catalog solely for convenience in referencing them. Their numbers do NOT reflect a ranking or prioritization of the actions.

Table 2 – Energy Supply (ES)

This catalog will be developed more fully during the project. Technical Work Group (TWG) members are encouraged to provide input on policies and programs in place in Southern California to assist in defining baselines. The "Notes" column should be used to record recently enacted policies and programs in California relevant to policy options and management actions in the catalog.

(Note: There is some overlap with and repetition with Table 1 - RCI.)

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reductions	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Southern California
ES-1	**EMISSIONS POLICIES AND OVERARCHING ITEMS**					
1.1	GHG cap and trade			Quantified as part of regional or national plan		
1.2	Carbon (GHG) tax			Clean energy funding mechanism		
1.3	Generation Performance Standards or Mitigation Requirements					
1.4	GHG targets or GHG Performance Standards			Carbon intensity targets		
1.5	Technology Research & Development			Renewables, CCSR, advanced supply-side energy generation, small scale nuclear		
1.6	Integrated Resource Planning					
1.7	Carbon Markets					
ES-2	**RENEWABLE ENERGY AND ENERGY EFFICIENCY**					
2.1	Renewable and/or Environmental Portfolio Standard			Tariffs		
2.2	Grid-based Renewable Energy Incentives and/or Barrier Removal			Incentives/support of trans-mission infrastructure for renewables. Needs enabling policies (e.g.,T&D and siting)		.

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reductions	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Southern California
2.3	Distributed Renewable Energy Incentives and/or Barrier Removal			Needs enabling policies such as net metering. Small scale distributed generation.		
2.4	Combined Heat and Power (CHP) Incentives and/or Barrier Removal			Needs enabling policies including net metering, Commercial, industrial and institutional CHP		
2.5	Green Power Purchases and Marketing			Retail customer choice program		
2.6	Pricing Strategies to Promote Renewable Energy (e.g. Net Metering)					
2.7	Renewable Energy Development Issues (zoning, sitting, etc.)					
2.8	Demand-side Energy Efficiency (RCI focus)					
2.9	Technology-focused initiatives (biomass, energy storage, etc.)					
2.10	Small Hydro Efficiency Improvements , Capacity Increase and Barrier Removal					
2.11	Utility Energy Efficiency Incentives and Barrier Removal					
2.12	Consumer Energy Efficiency and Barrier Removal					
2.13	Research and Development for Renewable Technologies					
2.14	Co-location or Integration of Energy-Producing Facilities					
ES-3	**FOSSIL FUEL AND NUCLEAR ELECTRICITY**					

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reductions	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Southern California
3.1	Advanced Fossil Fuel Technology incentives, support, or requirements (IGCC, CCSR, etc.)			CCSR enabling policies (administration, regulation, liability, incentives)		
3.2	Efficiency Improvements and Repowering Existing Plants			GHG mitigation requirements, heat recovery. Efficiency improvements for distributed generators		
3.3	Biomass co-firing at fossil fuel power stations					
3.4	Nuclear Power Review, Support and Incentives					
3.5	Relicensing/Up-rating Existing Nuclear Power					
3.6	New Nuclear Energy Capacity					
3.7	Technology-focused initiatives			Advanced fuel		
ES-4	**FOSSIL FUEL PRODUCTION, PROCESSING AND DELIVERY**					
4.1	Oil and Gas Production: GHG Emission Reduction Incentives, Support, or Requirements			Methane leaks, flaring reduction, combustion reductions		
4.2	Natural Gas Transmission and Distribution					
4.3	Oil Refining: GHG Emission Reduction Incentives, Support, or Requirements					
4.4	Coal Production: GHG Emission Reduction Incentives, Support, or Requirements					
4.5	Coal-to-liquids Production: GHG Emission Reduction Incentives, Support, or Requirements					

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reductions	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes/ Related Actions in Southern California
4.6	Low-GHG Hydrogen production incentives and support					
ES-5	**CARBON CAPTURE AND STORAGE OR REUSE (CCSR)**					
5.1	CCSR Enabling Policies (liability, administration, regulation,)					
5.2	CCSR Incentives and Infrastructure					
5.3	CCSR Research & Development					
5.4	Enhanced Oil Recovery					
ES-6	**OTHER ENERGY SUPPLY OPTIONS (Including enabling policies)**					
6.1	Transmission System Upgrading			Capacity, corridors, optimization		
6.2	General Distributed Generation Support (Interconnection Rules, Net Metering, etc.)					
6.3	Reduce Transmission and Distribution Line Loss					
6.4	Environmental /GHG Emissions Disclosure					
6.5	Public Benefits Charge Funds			Clean energy funding mechanism		
6.6	Regulatory Reform for Electric Co-ops					
6.7	N_2O Reduction Co-Benefit					

Acronyms

CCSR = carbon capture and storage or reuse
GHG = greenhouse gas
IGCC = integrated gasification combined cycle
N_2O = nitrogen dioxide
T&D = transmission and distribution